

**I claim:**

1. An image sensing module capable of fast transferring signal comprising:

an optical sensor set having a plurality of optical sensors, said optical sensors being used for receiving an optical signal and generating a plurality of  
5 corresponding charge signals;

a plurality of readout circuits each having a plurality of input terminals connected to a portion of said optical sensors and an output terminal, said output terminals of said readout circuits outputting in order said charge signals received by said input terminals; and

10 a plurality of amplifying circuits each having an input terminal and an output terminal, each of said input terminals of said amplifying circuits being independently connected to one of said output terminals of said readout circuits;

whereby said input terminals of said amplifying circuits receive and amplify  
15 said charge signals outputted in order by said output terminals of said readout circuits, and said output terminals of said amplifying circuits then output said amplified charge signals one by one.

2. The image sensing module capable of fast transferring signal as claimed in claim 1, wherein said optical sensor is one of the photodiode and  
20 phototransistor.

3. The image sensing module capable of fast transferring signal as claimed in claim 1, wherein said input terminals of said readout circuits are connected to said optical sensors in a discontinuous way.

4. The image sensing module capable of fast transferring signal as claimed in  
25 claim 1, wherein each said readout circuit comprising:

a switch array having a plurality of switches correspondingly connected to said optical sensors; and

a shift array having a plurality of shift registers correspondingly connected to said switches;

5     whereby said shift array turns on in order said switches connected to said shift registers to output in order said charge signals of said optical sensors connected to said switches.

5. The image sensing module capable of fast transferring signal as claimed in claim 1, wherein each said amplifying circuit comprising:

10     an operation amplifier having a grounded first input terminal, a second input terminal and an output terminal;

a first switch having a first terminal and a second terminal, said first terminal being connected to said output terminal of one of said readout circuits;

15     a second switch having a first terminal connected to said second terminal of said first switch and a grounded second terminal;

a third switch having a first terminal connected to said second input terminal of said operation amplifier and a second terminal connected to said output terminal of said operation amplifier;

20     a fourth switch having a first terminal connected to said output terminal of said operation amplifier and a second terminal;

a first capacitor having a first terminal connected to said second terminal of said first switch and a second terminal connected to said second input terminal of said operation amplifier; and

25     a second capacitor having a first terminal connected to said second input terminal of said operation amplifier and a second terminal connected to said

output terminal of said operation amplifier.

6. The image sensing module capable of fast transferring signal as claimed in claim 5, wherein said second terminals of said fourth switches of said amplifying circuits are connected together
- 5 7. The image sensing module capable of fast transferring signal as claimed in claim 5, wherein the capacitance of said first capacitor is larger than that of said second capacitor of each said amplifying circuit.
8. The image sensing module capable of fast transferring signal as claimed in claim 5, wherein said first switch and said third switch of each said  
10 amplifying circuit have the same switching frequency and are synchronous.
9. The image sensing module capable of fast transferring signal as claimed in claim 5, wherein said second switch and said fourth switch of each said amplifying circuit have the same switching frequency and are synchronous.
10. The image sensing module capable of fast transferring signal as claimed in  
15 claim 9, wherein said second switches of said amplifying circuits have the same switching frequency but are not synchronous.
11. The image sensing module capable of fast transferring signal as claimed in claim 9, wherein when said readout circuits output a charge signal, said second switches of said amplifying circuits will be on in order.
- 20 12. An image sensing method capable of fast transferring signal comprising the steps of:  
providing m charge signals by detecting light;  
dividing said m charge signals into n sets of outputs in a discontinuous order;  
25 capturing said charge signals of each set at the same time; and

outputting said captured charge signals in an orderly and time-sharing way.

13. The image sensing method capable of fast transferring signal as claimed in claim 12, wherein the division of said  $n$  sets of outputs is accomplished with  $n$  readout circuits.

5 14. The image sensing method capable of fast transferring signal as claimed in claim 13, wherein each said readout circuit outputs  $(m/n)$  charge signals in order.

15. The image sensing method capable of fast transferring signal as claimed in claim 12, wherein the arrangement order of said captured  $n$  charge signals is  
10 continuous.

16. The image sensing method capable of fast transferring signal as claimed in claim 12, wherein said captured charge signals have been amplified before outputted in an orderly and time-sharing way.